

User Manual

Mobile Line Touch Panel HTP105XiT

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1	2010-03-16	First Edition
2	2011-01-13	Technical data updated
3	2012-01-30	Standards updated, Added pin / cable assignment.

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1 Important Notes

1.1 Symbols

The symbols in this manual are used to draw your attention on notes and dangers.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER

This indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

This indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

This indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



NOTICE

This symbol together with the signal word NOTE and the accompanying text alert the reader to a situation which may cause damage or malfunction to the device, hardware/software, or surrounding property.



Reference to source of information

This symbol and the accompanying text provide the reader with additional information or refer to detailed sources of information.

1.2 Safety Notes

- Read this manual carefully before using the operating device. Keep this manual in a place where it is always accessible to all users.
- Proper transportation, handling and storage, placement and installation of this product are prerequisites for its subsequent flawless and safe operation.
- This user manual contains the most important information for the safe operation of the device.
- The user manual, in particular the safety notes, must be observed by all personnel working with the device.
- Observe the accident prevention rules and regulations that apply to the operating site.
- Installation and operation must only be carried out by qualified and trained personnel.

1.3 Intended Use

- The device is designed for use in the industry.
- The device is state-of-the art and has been built to the latest standard safety requirements. However, dangerous situations or damage to the machine itself or other property can arise from the use of this device.
- The device fulfills the requirements of the EMC directives and harmonized European standards. Any modifications to the system can influence the EMC behavior.



NOTICE: Radio Interference

This is a class A device. This device may cause radio interference in residential areas. In this case, the user may be required to introduce appropriate countermeasures, and to bear the cost of same.

1.4 Target Group

The use of products described in this manual is oriented exclusively to:

- Qualified electricians or persons instructed by them, who are familiar with applicable standards and other regulations regarding electrical engineering and, in particular, the relevant safety concepts.
- Qualified application programmers and software engineers, who are familiar with the safety concepts of automation technology and applicable standards.

2 Design and Commissioning

2.1 Unpacking the Device

Unpack all parts carefully and check the contents for any visible damage in transit. Also check whether the shipment matches the specifications on your delivery note.

If you notice damages in transit or discrepancies, please contact our sales department immediately.

2.2 Design

2.2.1 Front View with Dimensions

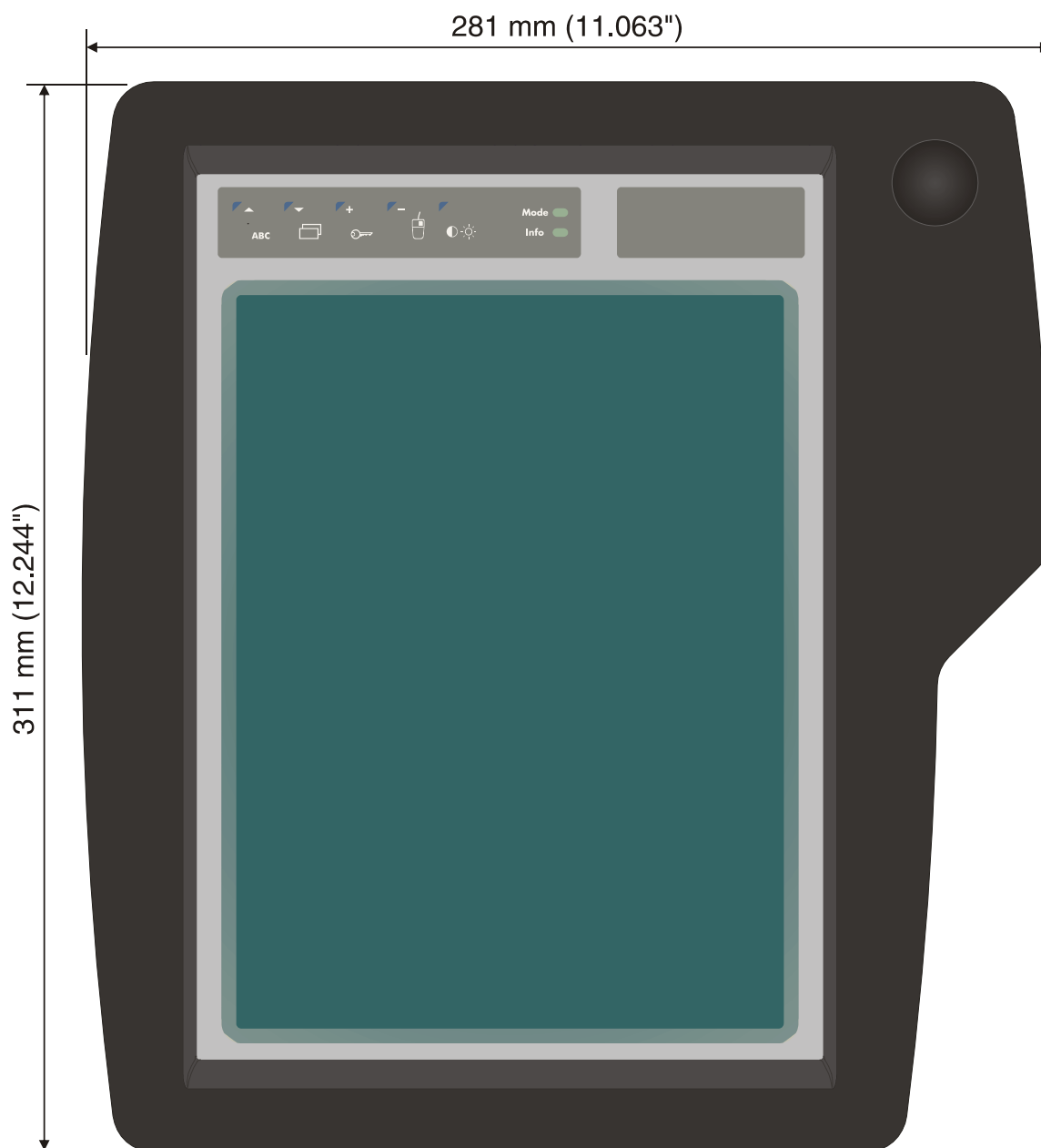


Figure 2-1 Front view with dimensions

2.2.2 Side View with Dimensions

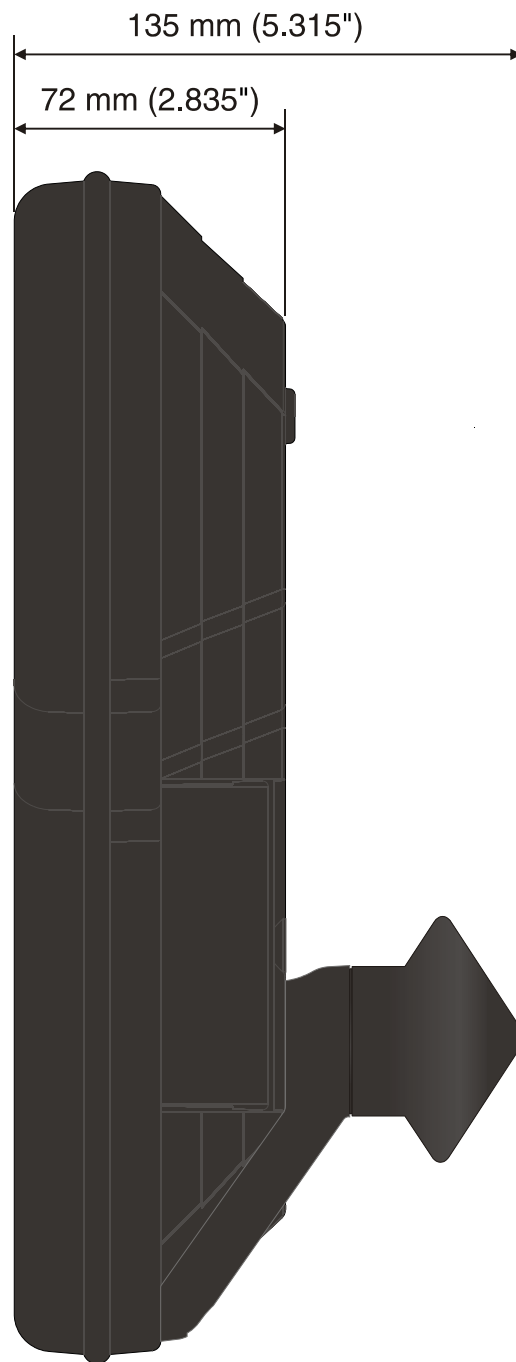


Figure 2-2 Side View with Dimensions

2.2.3 Rear View

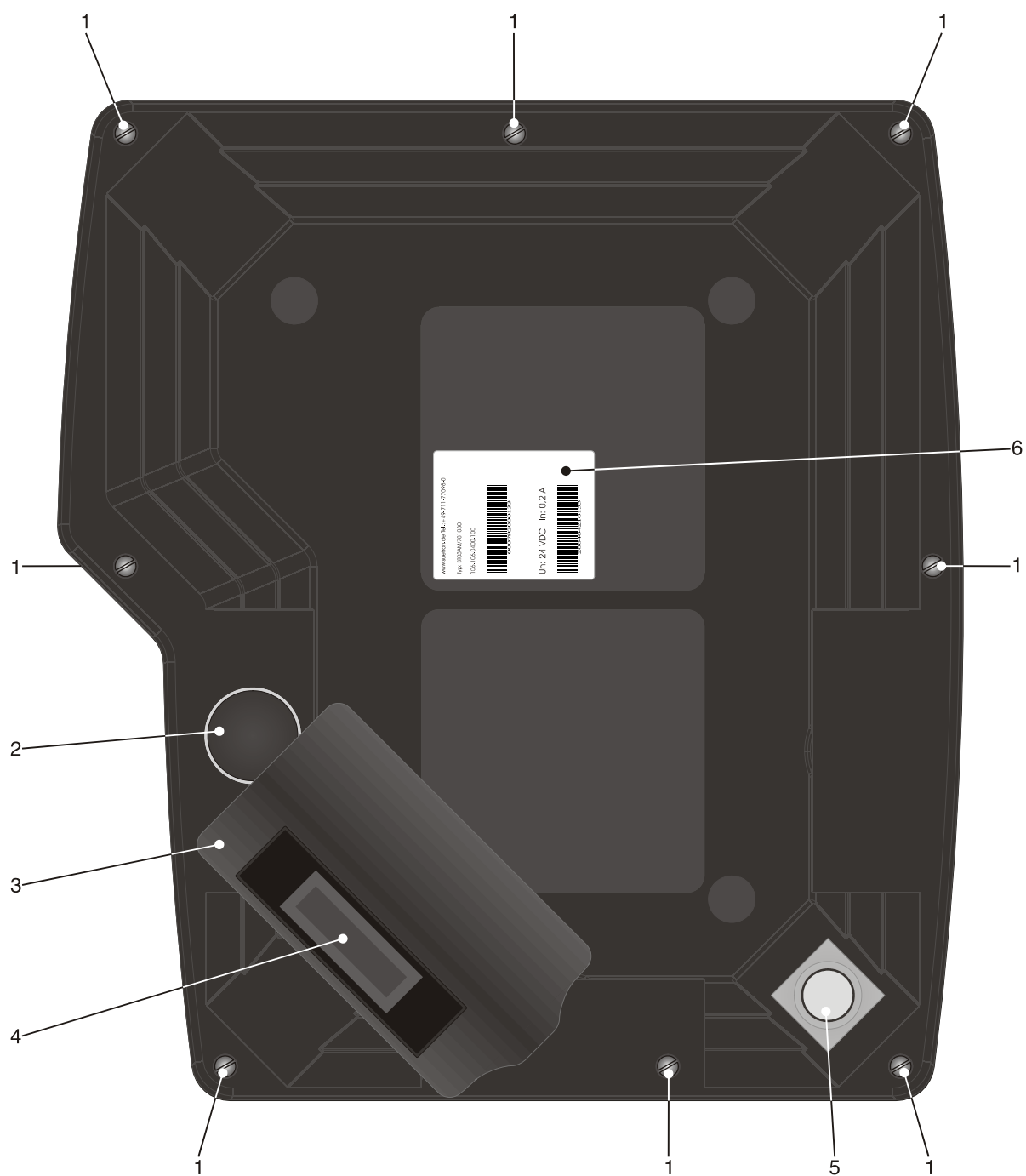


Figure 2-3 Rear view

- 1 Housing Screws
- 2 USB (optional)
- 3 Handle Set (optional - position can vary)
- 4 Consent Switch (optional - position can vary)
- 5 Device Connector (optional)
- 6 Name Plate

2.3 Connecting the Device

**WARNING: Risk of electric shock**

Hazardous voltages can exist inside electrical installations that can pose a danger to humans. There is a risk of electric shock when touching live parts!



For information on the pin or core numbers for the supply voltage, please refer to the chapter "Device Interfaces".

The device is protected against polarity reversal. The device will not operate if the polarity is incorrect.

This device is in Protection Class I. To ensure safe operation, a safety extra-low voltage (SELV) according to DIN EN 61131 must be used for the supply voltage.

2.4 Switching On

The Windows CE operating system is installed on the operating device. Running on the operating system is the visualization runtime.

2.4.1 Loading Procedure on Windows CE Operating System

The program allows you to use the buttons to make changes to the configuration.

The operating device has 3 operating modes:

- Normal (no button is pressed)
- Setup Main (Button **Press For Setup Main Menu** was pressed)
- Administration (**Admin** button was pressed)

2.4.1.1 Launch Structure

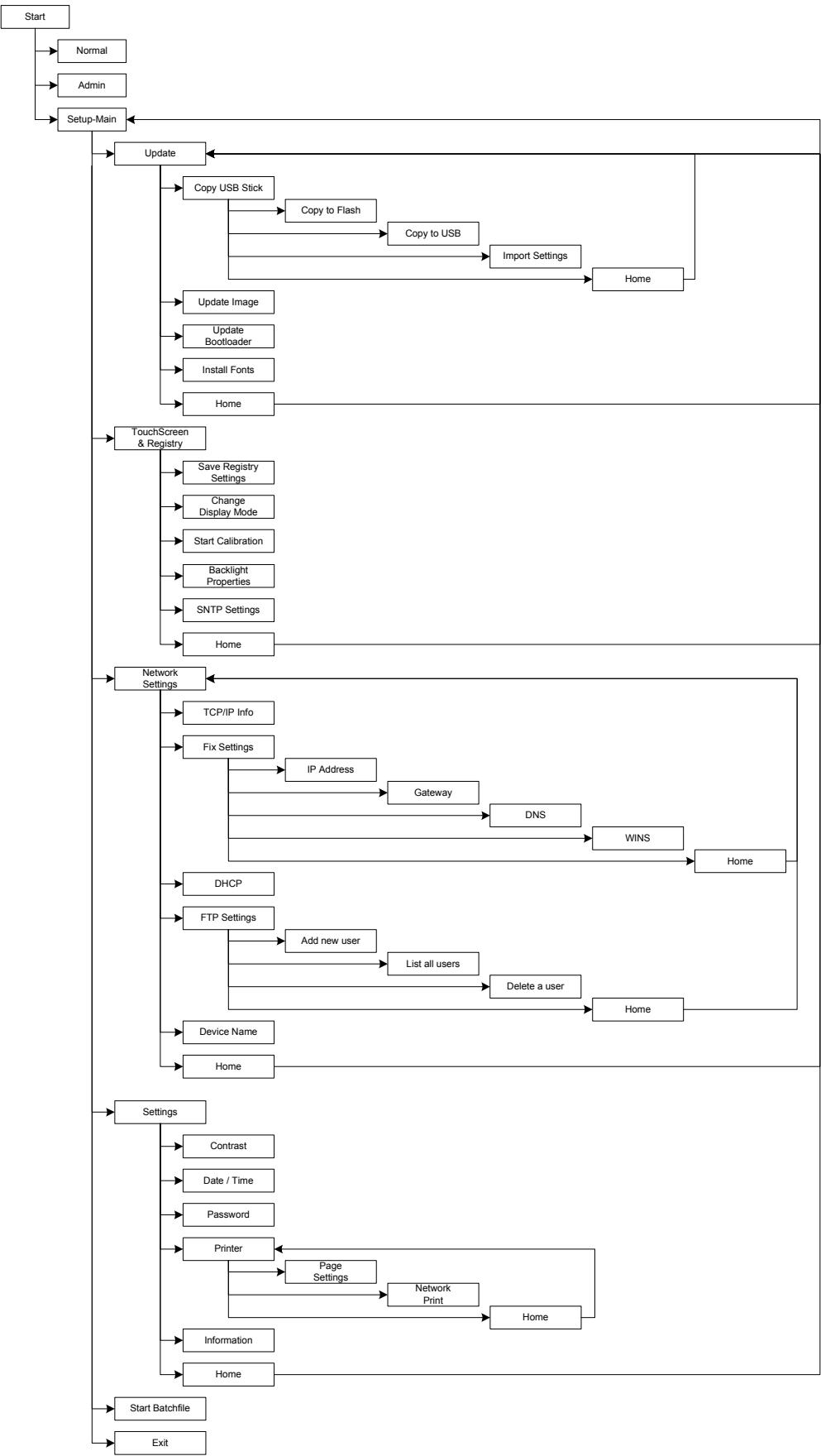


Figure 2-4 Launch structure

2.4.1.2 Normal Mode

The program AppStarter.exe starts from the internal Flash memory.

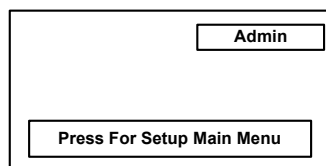


Figure 2-5 Display after startup



Please, note that the device is accessible over the Ethernet only after assignment of an IP address to the Ethernet.

2.4.1.3 Setup Main Mode

If you press the **Press For Setup Main Menu** button during the startup phase, the "Setup Main" mode starts.

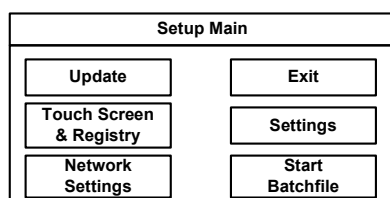


Figure 2-6 Setup Main



Some settings are password-protected. The default password is "+-+-.".

Update:

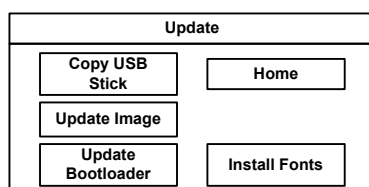


Figure 2-7 Update

Update, Copy USB-Stick:

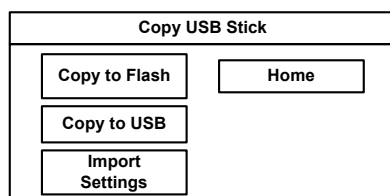


Figure 2-8 Copy USB Stick

Update, Copy USB-Stick, Copy to Flash:

This function copies the data from the USB stick to the internal flash file system.

Several projects can be managed in subdirectories below the directory TSvisRT. If more than one project is in different subdirectories, a choice dialog is displayed. Only directories which contain a project file (*.cb) are listed.

The entire TSvisRT directory or the corresponding subdirectory and the AppStarter.exe are copied into the target directory of the flash file system.

Update, Copy USB Stick, Copy to USB:

Copies the content of the flash file system to the „backup“ directory of the USB stick. This excludes protected system files. A log file is also transferred, which can be used to restore system settings via the „Import Settings“ item.

Update, Copy USB Stick, Import Settings:

An automatically generated log file can be used to restore the system settings. If the „backup“ directory of the USB stick contains a corresponding log file, these settings can be restored.

This is possible only when using identical device types.

Update, Update Image:

If the „image“ subdirectory on the USB stick contains a „*.nb0“ file, this file is used to perform the image update. There must only be one „*.nb0“ file in this directory. In this case, the flash registry is always deactivated so that the image is processed with a new default registry.

Update, Update Bootloader:

If the „bootloader“ subdirectory on the USB stick contains a „*.nb0“ file, this file is used to perform the bootloader update. There must only be one „*.nb0“ file in this directory.

The user is informed that the update has been successfully completed.

Update, Install Fonts:

If one or multiple fonts are in the subfolder "Fonts" of the flash memory, these will be installed at the start-up of the operating device automatically.

Depending on the number and size of fonts, the system start-up take correspondingly more time.

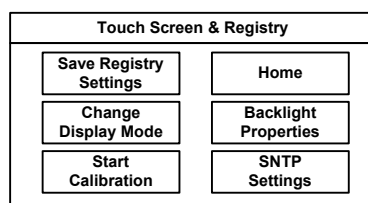
Touch Screen & Registry:

Figure 2-9 Touch Screen & Registry

Touch Screen & Registry, Save Registry Settings:

The entire registry is saved.

Touch Screen & Registry, Change Display Mode:

Figure 2-10 Change Display Mode

Set-up of display adjustment.

LCD Saver switches the brightness to the lowest value, if no user operation occurs for at least one hour.

This entry is able to be password-protected.

Touch Screen & Registry, Start Calibration:

The touch calibration is started. After the calibration the values are stored automatically in the registry.

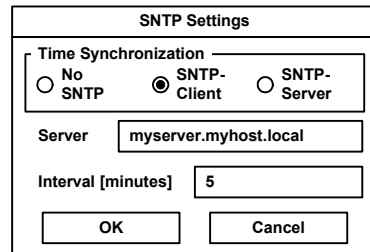
Touch Screen & Registry, Backlight Properties:

Figure 2-11 Backlight Properties

A screen saver can be activated after the defined time (minutes). It is possible to adjust the screen saver graphic by replacing the file "Screensaver.bmp" in the internal memory. The graphic is replaced at the start up of the operating device automatically when a USB stick - containing the file (Screensaver.bmp) in the "Screensaver" directory - is present.

The brightness of the backlight (dim backlight) can be reduced after the defined time (minutes) and turned off (backlight switch off) in addition.

This entry is able to be password-protected.

Touch Screen & Registry, SNTP Settings:


The SNTP Settings dialog box contains the following elements:

- Title Bar:** SNTP Settings
- Time Synchronization:** A section with three radio buttons: "No SNTP" (unselected), "SNTP-Client" (selected), and "SNTP-Server" (unselected).
- Server:** A text input field containing "myserver.myhost.local".
- Interval [minutes]:** A text input field containing "5".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

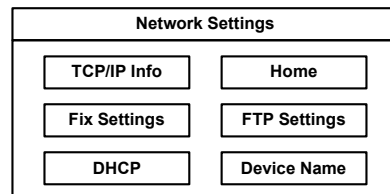
Figure 2-12 SNTP Settings

If you activate the "SNTP-Client" option, you can enter the address of a time server located in the intranet or Internet. The synchronization interval is specified in minutes.

With the option "No SNTP" the synchronization is deactivated.

The operating device may be used as a time server for other devices if the "SNTP-Server" option is active.

This entry is able to be password-protected.

Network Settings:


The Network Settings dialog box contains the following elements:

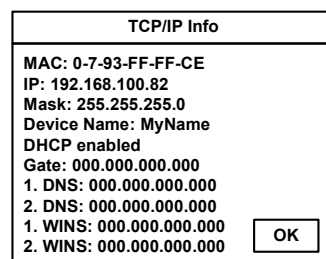
- Title Bar:** Network Settings
- Buttons:** A grid of six buttons: "TCP/IP Info", "Home", "Fix Settings", "FTP Settings", "DHCP", and "Device Name".

Figure 2-13 Network Settings



All addresses of the Network Settings have to be entered in the format "xxx.xxx.xxx.xxx".

Numbers smaller than 100 have to be filled up with leading zeros.
(e.g.: 192.168.42.1 -> 192.168.042.001)

Network Settings, TCP/IP Info:


The TCP/IP Info dialog box displays the following information:

- Title Bar:** TCP/IP Info
- Text:**
 - MAC: 0-7-93-FF-FF-CE
 - IP: 192.168.100.82
 - Mask: 255.255.255.0
 - Device Name: MyName
 - DHCP enabled
 - Gate: 000.000.000.000
 - 1. DNS: 000.000.000.000
 - 2. DNS: 000.000.000.000
 - 1. WINS: 000.000.000.000
 - 2. WINS: 000.000.000.000
- Buttons:** An "OK" button at the bottom right.

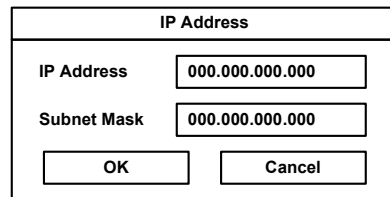
Figure 2-14 TCP/IP Info

The following informations are displayed:

- MAC address
- IP address,
- Subnet mask address,
- Device name,
- DHCP status,
- Gateway address,
- 1. DNS address,

- 2. DNS address,
- 1. WINS address,
- 2. WINS address.

Network Settings, Fix Settings, IP Address:



The dialog box is titled "IP Address". It contains two input fields: "IP Address" with the value "000.000.000.000" and "Subnet Mask" with the value "000.000.000.000". At the bottom, there are two buttons: "OK" and "Cancel".

Figure 2-15 IP Address

The system automatically deselects DHCP and optionally enters the settings from the IPSetting.ini file of the USB stick. This file must exist in the root directory of the USB stick.

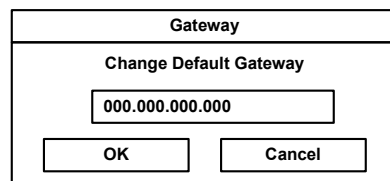
If no USB stick is connected the information is read from the registry.

This entry is able to be password-protected.

Contents of the IPSetting.ini file:

```
[IPCONFIG]
IPAddress=172.016.042.150
SubnetMask=255.255.255.000
```

Network Settings, Fix Settings, Gateway:



The dialog box is titled "Gateway". It contains a section titled "Change Default Gateway" with an input field showing the value "000.000.000.000". At the bottom, there are two buttons: "OK" and "Cancel".

Figure 2-16 Gateway

The system automatically deselects DHCP and optionally enters the settings from the IPSetting.ini file of the USB stick. This file must exist in the root directory of the USB stick.

If no USB stick is connected the information is read from the registry.

This entry is able to be password-protected.

Contents of the IPSetting.ini file:

```
[IPCONFIG]
Gateway=172.016.042.150
```

Network Settings, Fix Settings, DNS:

DNS	
Primary DNS	<input type="text" value="000.000.000.000"/>
Secondary DNS	<input type="text" value="000.000.000.000"/>
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

Figure 2-17 DNS

The system deselects DHCP and enters the settings from the IPSetting.ini file of the USB stick. This file must exist in the root directory of the USB stick. If no USB stick is connected the information is read from the registry.

This entry is able to be password-protected.

Contents of the IPSetting.ini file:

```
[IPCONFIG]
PrimaryDNS=172.016.042.150
SecondaryDNS=172.016.042.151
```

Network Settings, Fix Settings, WINS:

WINS	
Primary WINS	<input type="text" value="000.000.000.000"/>
Secondary WINS	<input type="text" value="000.000.000.000"/>
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

Figure 2-18 WINS

The system automatically deselects DHCP and optionally enters the settings from the IPSetting.ini file of the USB stick. This file must exist in the root directory of the USB stick.

If no USB stick is connected the information is read from the registry.

This entry is able to be password-protected.

Contents of the IPSetting.ini file:

```
[IPCONFIG]
PrimaryWINS=172.016.042.150
SecondaryWINS=172.016.042.151
```

Network Settings, DHCP:

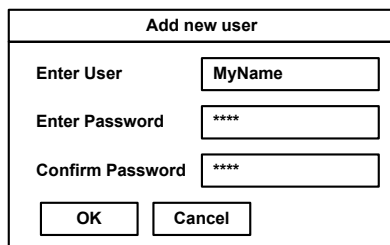
DHCP	
DHCP enabled Save registry and restart device to work with new parameters	
<input type="button" value="OK"/>	

Figure 2-19 DHCP

You may enable DHCP service. You must save this setting when exiting of by using „Save Registry Settings“.

This entry is able to be password-protected.

Network Settings, FTP Settings, Add new user:



A dialog box titled "Add new user" with three input fields and two buttons. The first field is labeled "Enter User" and contains the text "MyName". The second field is labeled "Enter Password" and contains four asterisks "****". The third field is labeled "Confirm Password" and also contains four asterisks "****". At the bottom are two buttons: "OK" and "Cancel".

Figure 2-20 Add new user

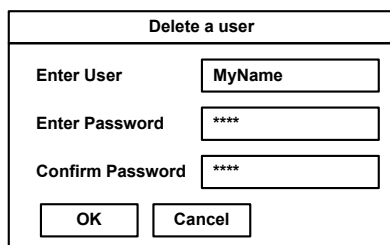
You may enter a new user name. You have to assign a password to the user name and to confirm it.

If at least one user name is added you cannot login to the FTP server as anonymous anymore.

Network Settings, FTP Settings, List all users:

All users are listed within a DOS box.

Network Settings, FTP Settings, Delete a user:



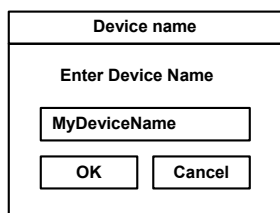
A dialog box titled "Delete a user" with three input fields and two buttons. The first field is labeled "Enter User" and contains the text "MyName". The second field is labeled "Enter Password" and contains four asterisks "****". The third field is labeled "Confirm Password" and also contains four asterisks "****". At the bottom are two buttons: "OK" and "Cancel".

Figure 2-21 Delete a user

You may enter the user name you like to delete.

This entry is able to be password-protected.

Network Settings, Device Name:



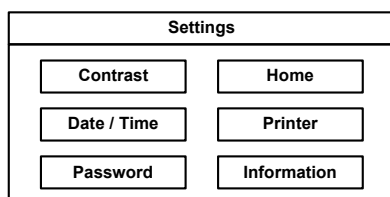
A dialog box titled "Device name" with one input field and two buttons. The input field is labeled "Enter Device Name" and contains the text "MyDeviceName". At the bottom are two buttons: "OK" and "Cancel".

Figure 2-22 Device Name

You can define a device name with up to 14 characters. Via a FTP connection you can access the device with the device name instead of the IP address.

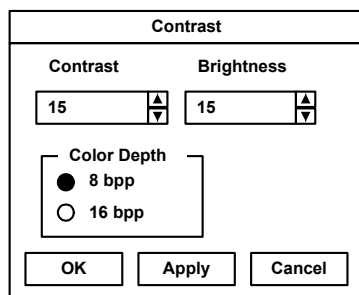
This entry is able to be password-protected.

Settings:



A dialog box titled "Settings" with six buttons arranged in a 3x2 grid. The buttons are labeled: "Contrast", "Home", "Date / Time", "Printer", "Password", and "Information".

Figure 2-23 Settings

Settings, Contrast:


The dialog box is titled "Contrast". It contains two sections: "Contrast" and "Brightness". Each section has a numeric input field set to "15" and a small up/down arrow icon. Below these is a "Color Depth" section with two radio buttons: "8 bpp" (selected) and "16 bpp". At the bottom are three buttons: "OK", "Apply", and "Cancel".

Figure 2-24 Contrast

The operating mode setup main is displayed with default values for contrast and brightness to ensure reading also at faulty values. If you change a value, you have to confirm this in a dialog. If you press **Cancel** or 5 seconds pass without any action the value is not accepted.

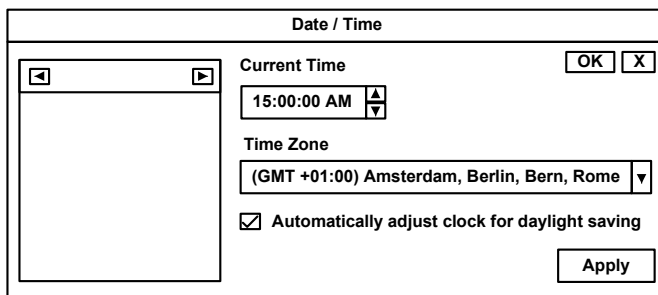
Depending on the display type different values can be influenced:

Table 2-1

Display Type	Contrast	Brightness
STN (mono)	X	-
STN (color)	X	X
TFT	-	X

Selection of color depth for TFT displays.

This entry is able to be password-protected.

Settings, Date / Time:


The dialog box is titled "Date / Time". On the left is a large empty rectangular area. To its right, there are several controls: a "Current Time" section with a text field showing "15:00:00 AM" and a small up/down arrow icon, with "OK" and "X" buttons to its right; a "Time Zone" section with a dropdown menu showing "(GMT +01:00) Amsterdam, Berlin, Bern, Rome"; a checked checkbox labeled "Automatically adjust clock for daylight saving"; and an "Apply" button at the bottom right.

Figure 2-25 Date / Time

Set the date, time and time zone.

Settings, Password:

Password

Current Password

☒ Enable Password

Change

OK

Cancel

Figure 2-26 Password

The password can be activated, deactivated or redefined. When the password is activated, all password-protected dialog boxes can only be accessed if the password has been entered successfully.

This entry is able to be password-protected.

Settings, Printer:

Printer

Page Settings

Network Print

Home

Figure 2-27 Printer

The print function depends on the application program on the operating device. Connection of a printer is possible via the network and the USB interface. The operating system supports PCL3-compatible printers.

Table 2-2 Already used printer models

Model
HP OfficeJet 6000
HP OfficeJet Pro 8000
HP DeskJet 6940
HP DeskJet 5150
HP Laserjet 1505N

This entry is able to be password-protected.

Settings, Printer, Page Settings:

Page Settings

Page Settings:

☒ Letter

☐ A4

OK

Cancel

Figure 2-28 Page Settings

Select the paper format, "Letter" or "A4", "Letter" is default.

This entry is automatically stored in the registry.

Settings, Printer, Network Print:

Figure 2-29 Network Print

Enter the network printer path.

This entry is automatically stored in the registry.

Settings, Printer, Network Print, Network Server Login:

Figure 2-30 Network Server Login

You may perform a network login.

Enter a user name, password and domain.

This entry is automatically stored in the registry.

Settings, Information:

Figure 2-31 Information

The following informations are displayed:

- Serial number,
- Product ID,
- Image version,
- Built version,
- Built date,
- Size of flash,
- Size of SRAM,
- Size of PLC / Visu RAM,
- Bus clock speed.

Start Batchfile:

The **project.bat** file in the **FlashDrv** directory starts, if available.

2.4.1.4 Administration Operating Mode

If you press the **Admin** button during the startup phase, the Administration mode of operation starts.

You can use the Admin.ini file to manage the device. This file must exist in the root directory of the USB stick.

This file is used as a dongle to prevent users from changing the device during normal operation.

Possible contents for the Admin.ini file:



Observe upper and lower case for all entries!

Explorer=Off	Deactivates the Explorer in the registry. The change becomes effective on the next device reboot.
Explorer=On	Activates the Explorer in the registry. The change becomes effective on the next device reboot.
Start=explorer.exe	Starts the explorer
Start=MyProgram.exe	Starts the application MyProgram.exe Initial directory is windows. Use the following syntax to start an application on the usb stick: Start=\\\\HardDisk\\MyProgram.exe Use multiple entries to start several applications.
Registry=Default	Destroys the current registry and activates the default registry of the image. The change becomes effective on the next device reboot.
StartRepllog=On	Enables automatic startup of the Repllog.exe program in the registry. The change becomes effective on the next device reboot.
StartRepllog=Off	Disables automatic startup of the Repllog.exe program in the registry. The change becomes effective on the next device reboot.
LaunchTouch=On	The touch variant of the launch will start at devices with keyboard. The change becomes effective on the next device reboot.
LaunchTouch=Off	The standard variant for the device will start. The change becomes effective on the next device reboot.
Lock=On	The buttons Press for Setup Main Menu and Admin are disabled. If the file „Admin.ini“ is found on the usb stick the button Admin is enabled. Therefore the deactivation of the lock is possible. The change becomes effective on the next device reboot.
Lock=Off	All buttons enabled. The change becomes effective on the next device reboot.
Mode=Development	The shell has full functionality. The change becomes effective on the next device reboot.

Mode=Standard	The Shell is restricted: No task bar and task switch available. Desktop contains the launch icon only. The change becomes effective on the next device reboot.
DeviceName=MyName	Defines the device name of the operating device
;DeviceName=MyName	Comment, no impact

2.5 Identification

The operating device can be identified using the nameplate on the rear of the device.

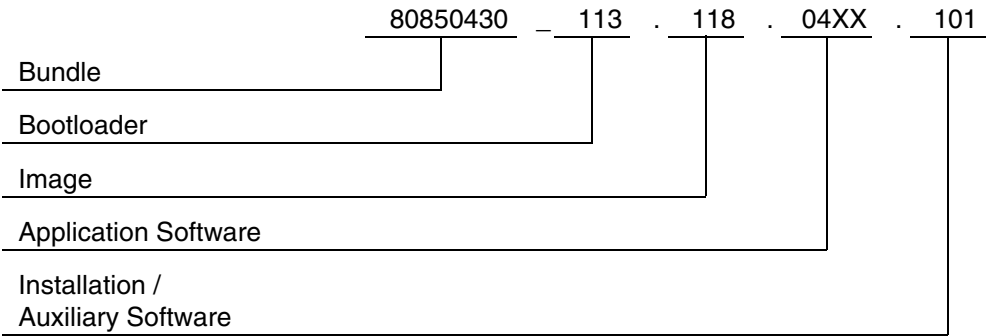


Figure 2-32 Nameplate (example)

- 1 Order number
- 2 Version key (at time of delivery)
- 3 MAC address
- 4 Voltage and power specification
- 5 Serial number

2.5.1 Version Key

The version key provides information on the version level of various components at time of delivery.



3 Control and Display Elements

3.1 Keyboard

The keys are positioned under an environmental-proof polyester foil.

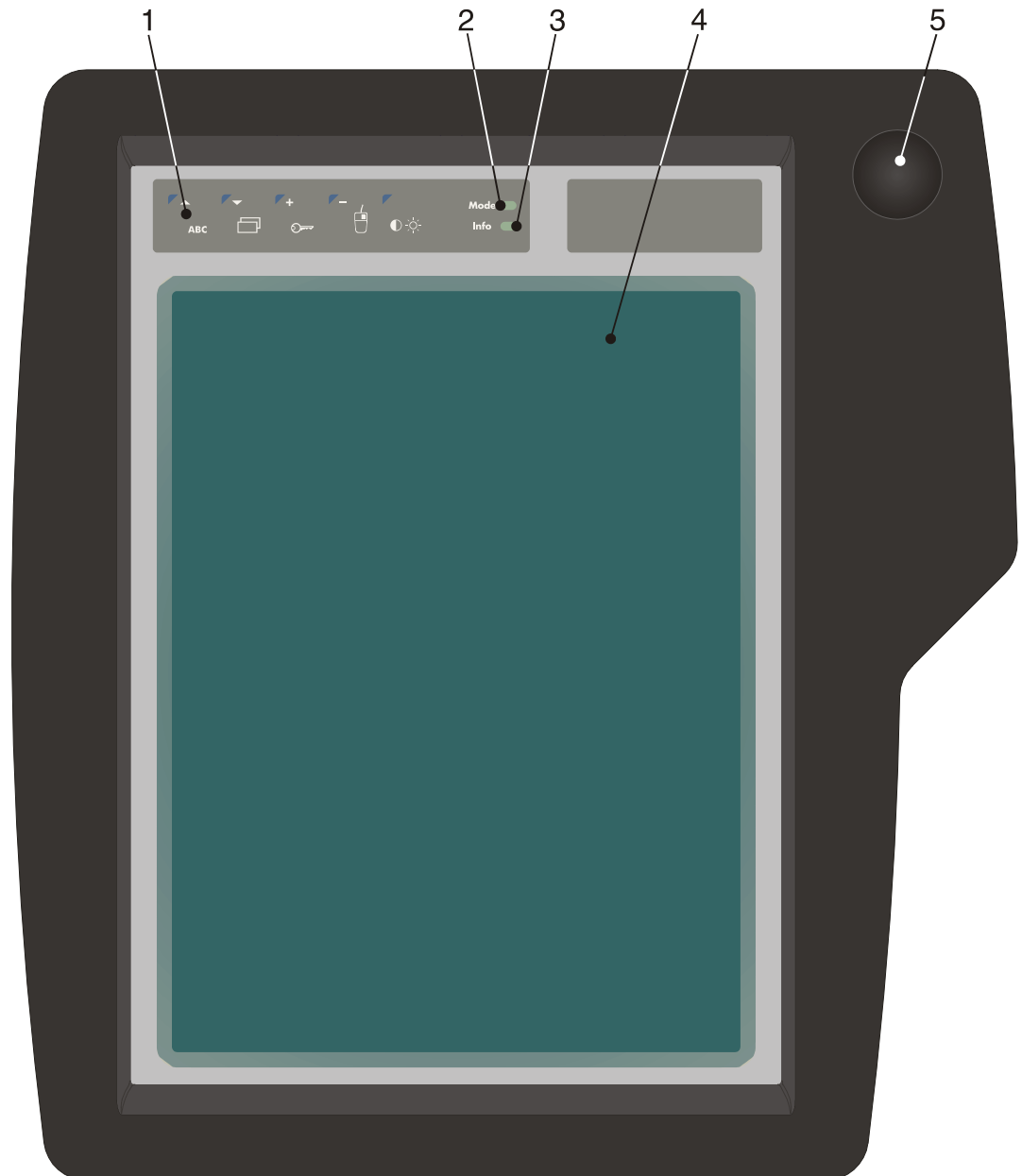


Figure 3-1 Front view

- 1 Help Keys
- 2 Status LED Mode
- 3 Status LED Info
- 4 Display
- 5 Command Devices (optional: Emergency Stop Push-button, Stop Push-button, Keylock Switch)

3.1.1 Help Keys



Use this key to show a soft keyboard. To hide the keyboard, press the key again.



Use this key to open the Task Manager in order to change to another task or use this key to close the Task Manager. When you press this key again, the dialog for changing to another task is closed.



Use this key to open the Service tool. To exit the Service tool, press the key again.



Use this key to open the context menu, which can usually be reached by pressing the right mouse button.



To define the contrast / brightness setting, use the key combinations shown below as follows:

To increase the contrast:



To increase the brightness:



To reduce the contrast:



To reduce the brightness:



3.2 Touch Screen

The device is equipped with a resistive 4 wire touch screen. You operate the device using this touch screen.



NOTICE: Damage

Pointed or sharp objects, such as pens or fingernails, can lead to irreparable damages of the touch screen. Exclusively therefore use the fingertips or the aids indicated in the technical data for the operation.



NOTICE: Damage

To protect the touch screen you can use special protection foils. You receive corresponding protection foils directly from Sutron electronic.

3.3 Stop Push-button / Emergency Stop Push-button

The device can be fitted with an optional stop push-button or an emergency stop push-button.

The operating device has to be regarded as a component of the integrated plant merely. Take suitable protective measures in accordance with the requirements of your plant therefor.

The STOP push-button on the operating device ensures that the system to be monitored is shut down safely in accordance with EN 60204-1:2006. The stop function can be a Category 0, 1 or 2 stop according to EN 60204-1:2006 and must be defined according to the risk assessment.

Therefore, the stop function of the operating device can be used for a safe machine stop as well as for looping into the emergency stop circuit of the system to be monitored.

**WARNING**

If using a hand-held operating device with an emergency stop button, you must ensure that the connecting cable is securely installed.

A hand-held operating device that is not connected to the machine must be stored out of sight of the user!

Bear in mind that the nearest emergency stop will be activated in the event of danger. If it does not work because it is not connected, this could have fatal consequences!

**WARNING**

If the hand-held operating device is equipped with a STOP push-button but it is not connected to the linkbox, a stop can not be triggered using the hand-held operating device – the STOP push-button of the hand-held operating device is ineffective! Install stationary emergency stop buttons that are available at all times on the system to be monitored.

**WARNING**

If the stop circuit has been implemented as a Category 0 or 1 stop, the stop function must be effective regardless of the operating mode. A Category 0 stop must have priority. The releasing of the STOP push-button must NOT lead to hazardous conditions (also see EN 60204-1:2006).

The stop function is not a substitute for safety devices.

3.4 Consent Switch

The device is fitted with a handle set featuring an integrated 3-step consent switch. Operating sequences can only be performed if the 3-step switch is actuated while set to its middle position. The stop signal is issued when the switch is set to its upper and lower position. After a stop in the lowest position, the release command can only be issued if the switch is fully released and pushed to the middle position again.

The operating device has to be regarded as a component of the integrated plant merely. Take suitable protective measures in accordance with the requirements of your plant therefor.

The use of a 2-circuit design for the consent equipment enables compliance with safety category 3 PL d according to EN ISO 13849-1 and the suitable monitoring on short circuit and cross circuit of these circuits.

EN 60204 describes the mode of operation of the consent equipment. Based on information gathered from accident research and on the technical solutions currently available, the 3-step consent switch represents state-of-the-art technology. Positions 1 and 3 of the consent switch are "OFF" functions. Only the middle position activates consent.

The stop category of the consent equipment must be selected on the basis of a risk assessment and must correspond to a Category 0 or Category 1 stop.



WARNING

The consent switch is only suitable for use as a protection function if the person operating the consent switch is able to recognize hazards to personnel in good time and can then immediately initiate hazard prevention measures!

Slower movement speed may also be necessary as an additional measure. The permissible speed must be determined on the basis of a risk assessment.



WARNING

No commands related to hazardous conditions may be initiated by the consent switch alone. A second, conscious start command is necessary (button on hand-held operating device). Only the person operating the consent switch is permitted to be present in the hazardous area.

The following standards must be applied for the risk analysis to be carried out:

- EN 12100-1 and EN 12100-2 „Safety of machinery - basic concepts, general principles for design“
- EN 14121-1 „Safety of machinery - risk assessment“

3.5 Display



DANGER: Toxic

If the display is damaged, avoid touching, swallowing or breathing in the liquids or gases which may leak out!



DANGER: Corrosive

If the display is damaged, avoid touching, swallowing or breathing in the liquids or gases which may leak out!

The operating device is equipped with a TFT display.


4 Interfaces of the Device

4.1 Connector / Cable Assignment

4.1.1 22 pin connector for Siemens PROFINET Connection Box

The operating device is equipped with an assembled 19 pin device connector at the enclosure. This device connector gets connected to the connector cable which has a 22 pin male connector for connection to a Siemens PROFINET connection box.

Table 4-1 Connector / cable assignment

Pin at Connector		Wire	\varnothing mm ²	Designation	Function
22 Pin	19 Pin				
14	2	BK	5 x 0.155	+ 24 V	Supply Voltage 24 VDC
6	11	GRPK		S	Consent Switch Channel 1
5	10	BNGN		S	Consent Switch Channel 1
4	18	WHGN		S	Consent Switch Channel 2
7	17	RDBU		S	Consent Switch Channel 2
12	1	VT	5 x 0.155	0 V	Supply Voltage 0 VDC
11	9	GN		Ö	Stop Push-button Channel 1
10	16	BN		Ö	Stop Push-button Channel 1
9	7	YE		Ö	Stop Push-button Channel 2
8	8	GR		Ö	Stop Push-button Channel 2
15	-	BU	4 x 0.155	-	Not Connected
22	-	BUWH		-	Not Connected
-	-	PK		-	Not Connected
-	-	PKWH		-	Not Connected
18	3	WH	4 x 0.155	Tx+	Ethernet
19	4	OR		Tx-	Ethernet
17	5	WH		Rx+	Ethernet
16	6	GN		Rx-	Ethernet
20	12	Shield	-	-	RJ45 Shield
Enclosure	Enclosure	Shield	-		Low-Noise Ground

4.1.2 19 pin device connector with open cable end

The operating device is equipped with an assembled 19 pin device connector at the enclosure. This device connector gets connected to the connector cable which has an open cable end.

Table 4-2 Connector / cable assignment

Pin	Wire	ø mm ²	Designation	Function
1	GN	5 x 0,34	0 V	Supply Voltage 0 VDC
2	BN		+ 24 V	Supply Voltage 24 VDC
12	YE		(⊥)	Low-Noise Ground
15	GR		S	Key Switch (optional)
19	WH		S	Key Switch (optional)
9	RD	4 x 0,34	Ö	Stop Push-button Channel 1 (optional)
16	PK		Ö	Stop Push-button Channel 1 (optional)
7	BU		Ö	Stop Push-button Channel 2 (optional)
8	BK		Ö	Stop Push-button Channel 2 (optional)
10	WHGN	4 x 0,34	S	Consent Switch Channel 1
11	VT		S	Consent Switch Channel 1
17	GRPK		S	Consent Switch Channel 2
18	RDBU		S	Consent Switch Channel 2
3	YE	4 x 0,15	Tx+	Ethernet
4	GN		Tx-	Ethernet
5	PK		Rx+	Ethernet
6	BU		Rx-	Ethernet

5 Maintenance and Servicing

5.1 Maintenance Interval

The following maintenance intervals are recommended for this operating device:

Table 5-1 Maintenance interval

Maintenance work	Interval
Changing the Battery	4 Years

5.2 Front Panel

Only use a damp cloth to remove any dirt from the front panel.

5.3 Fuse



NOTICE: Damage

The semiconductor fuse cannot be replaced!

A semiconductor fuse is used to protect the device. Once the fuse has been tripped, the device must be disconnected from the supply voltage to allow the semiconductor fuse to regenerate. At an ambient temperature of 20 °C (68 °F), the regeneration takes approximately 20 seconds. The higher the ambient temperature, the longer the regeneration takes.

5.4 Battery (Option)

The built-in battery supplies the real-time clock. The minimum battery life is 5 years, even under unfavorable operating conditions.

We recommend to change the battery approximately every 4 years by the service of Sutron electronic as part of the regular maintenance work.

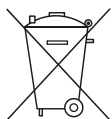
Carry out the following to check the battery status:

1. Press the Servicetool button on your operating device.
2. Open Systeminfo by double-clicking (double-tapping) the appropriate icon.
3. Select the Battery tab.

You can display the following statuses:

Battery OK	Battery is ready for operation
No battery found	Battery is empty or there is no battery at all

5.4.1 Battery Disposal



The manufacturer is obliged to mark batteries with this symbol before first placing into market. The symbol is extended by the chemical symbols if the following limiting values are exceeded:

More than 0.0005 mass percent mercury	Hg
More than 0.002 mass percent cadmium	Cd
More than 0.004 mass percent lead	Pb

Batteries can be given back free of charge after use at the place of purchase.

According to the §11 of the battery law, final consumers are obliged to give old batteries back to gathering points which attached to the common take back system or manufacturer-specific take back systems.



NOTICE: Damage

To prevent short circuitry in the collection boxes, insulate the poles of each battery with insulation tape or put each single battery into a plastic bag.

6 Technical Data

6.1 General

Display	
Type	TFT (color)
Resolution (pixels)	800 x 600
Colors	65536
Reading angle (vertical / horizontal)	110° / 140°
Backlight	CCFL
Half-life backlighting	50,000 h
Brightness in cd/m ²	330
Display area (H x W) in mm (Inch)	158 x 211 (6.22 x 8.307)

Keyboard	
Type	Membrane Keyboard
Number of Keys	5 Help Keys
Key Area (Embossment)	12 mm x 12 mm (0.473" x 0.473")
Actuator Travel	0.6 mm (0.024")
Activation Power	3 N
Switching Cycles	Approx. 3 Million Under the Following Conditions: Keystroke Element: Testing Ram (DIN 42115) Keystroke Load: 10 N Keystroke Frequency: 1 Hz
Display Elements	2 Status LEDs

Touch Screen	
Type	Analog resistive, 4 wire technology
Activation force	15 g (Standard) With R8 HS60 silicon rubber
Durability	No damages or malfunctions after 3 million keystrokes as the following: Keystroke element: R8, HS40 silicon rubber Keystroke load: 150 g Keystroke frequency: 3 Hz

Electrical Data	
Supply voltage	24 V DC (SELV / PELV in accordance with DIN EN 61131)
Residual ripple	10 % maximum
Minimum voltage	18 V
Maximum voltage	30 V
Power consumption (typical at 24 V)	0.7 A
Power consumption (maximum)	1.0 A
Connected load	16.8 W
Fuse	Semiconductor fuse, self-resetting
Protection against polarity reversal	Integrated

Central Processing Unit	
Central Processing Unit	RISC CPU PXA320
Clock frequency	806 MHz
Other features	Real-time clock (accuracy: +/- 200 ppm)

Memory	
Flash (Internal)	1 GByte
SDRAM	128 MByte
SRAM	1 MByte
CompactFlash interface for CompactFlash type I and II (internal)	

Ethernet	
Ethernet	10/100 Base-T

USB	
Corresponds to the "Universal serial bus specification Rev. 1.1"	
Host (external)	Min.: 1,5 Mbit/s Max.: 12 Mbit/s Max. output current 100 mA per output

Environmental Conditions	
Temperature during operation	0 °C to 50 °C (32 °F to 122 °F)
Temperature during storage, transport	- 25 °C to + 70 °C (- 13 °F to 158 °F)
Relative air humidity for operation and storage	20 % to 85 %, no condensation
Application area	Degree of pollution 1, overvoltage category II

Standards and Guidelines	
Interference Immunity	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-6-2
Emitted Interference	EN 50011 Limit Class Value A
Equipment Requirements	EN 61131
Storage and Transportation	EN 61131 Part 2
Power Supply	EN 61131 Part 2
Electromagnetic Compatibility	2004/108/EG
Degree of Protection	EN 60529
Impact Load, Shocks	EN 60068 Part 2-27
Sinusoidal Vibrations	EN 60068 Part 2-6
Corrosion Protection	IEC 60068


NOTICE: Radio Interference

This is a class A device. This device may cause radio interference in residential areas. In this case, the user may be required to introduce appropriate countermeasures, and to bear the cost of same.

Housing	
Type	ROSE Limanda
Material	Polyamide
Impact Resistance	> 7 Nm to DIN 50014
Flammability	V2 to UL94
Degree of Protection	IP65
Total Weight	Approx. 3.2 kg Without Connecting Cable

6.2 Options

Emergency Stop Push-button	
Type	Rafi RAFIX 16
Lifetime	30 000 Switching Cycles
Contact Configuration	Rafi RAFIX 16 Universal Switching Element 2Ö
Switching Element Lifetime	1.000.000
Maximum voltage	24 V AC/DC
Maximum current	1 A

Stop Pushbutton	
Type	Rafi RAFIX 16
Lifetime	30 000 Switching Cycles
Switching Element	Rafi RAFIX 16 Universal Switching Element 2Ö
Switching Element Lifetime	1.000.000
Maximum voltage	24 V AC/DC
Maximum current	1 A

Consent Switch - Jokab	
According to EN 60204-1	
Type	Jokab Safety JSHD4H2
Switching Element	3-Step Switch (2 Channels)
Mechanical Lifetime	>1 Million Switching Cycles (Upper Position to Middle Position) >100 000 Switching Cycles (Middle Position to Lower Position)
Maximum voltage	24 V AC/DC
Maximum current	1 A

Connection System	
Cable Connector (CONINVERS; TU Series), 19 Pin, Bajonett	
Device Connector (CONINVERS; TU Series), 19 Pin	
Minisnap Male Connector (ODU; B Series), 22 Pin	

7 Ordering Data

Table 7-1 Accessories

Description	Part No.
USB 2.0 stick 1 GB	81152.100
Protective foil for touch screen 6.5" (Set with 10 protective foils, scraper and instructions)	81251.065
Protective foil for touch screen 10,4" (Set with 10 protective foils, scraper and instructions)	81251.104
Protective foil for touch screen 12,1" (Set with 10 protective foils, scraper and instructions)	81251.121
Protective foil for touch screen 15" (Set with 10 protective foils, scraper and instructions)	81251.150
Connection cable with threaded female connector M23 and Minisnap male connector (5 metres)	88425.050

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